Human Health & Safety Consequences

Loss of Life Modeling & Literature

Review of Katrina Impacts

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Purpose of Loss of Life Modeling

- Estimate potential loss of life associated with hurricane-related flood events in greater New Orleans
- Potential loss of life with different flood elevations in each of 25 polders estimated for two scenarios:
  - Scenario 1--Given population & housing stock as of August 2005 (pre-Katrina)
  - Scenario 2--Given population & housing stock expected as of June 2006 (post-Katrina)

Loss of Life Modeling Approach

- Modeling process involves two main steps
- First, LIFESim (a spatially distributed, dynamic simulation model), as calibrated to the actual Katrina event, is used to estimate how the population in flooded areas will be vertically distributed in relation to flood elevations
  - For each maximum flood elevation, LIFESim estimates populations at risk in four flood zones (walk-away zone, safe zone, compromised zone, and chance zone)

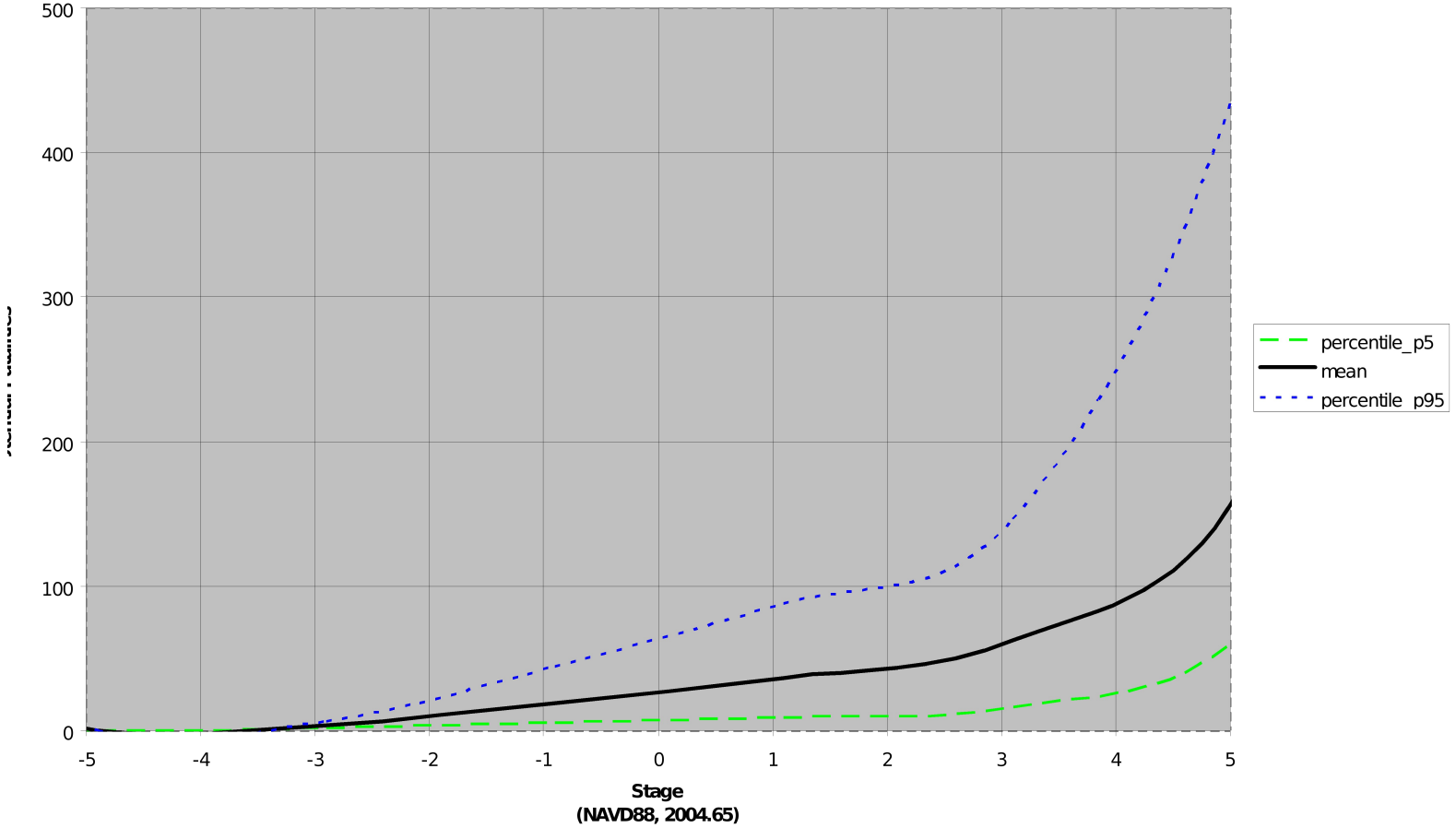
Loss of Life Modeling Approach-

- Second, the LIFESim estimates of populations at risk by flood zone are imported into a Monte Carlo uncertainty model to estimate potential loss of life given assumed distributions for various uncertain parameters
- The uncertain parameters include: pre-storm evacuation rates, rescue efficiency in different flood zones, and fatality rates in different flood zones

Results of Loss of Life Modeling

- Modeling runs are in process; results for both scenarios expected by April 24, 2006
- The scenario 1 results will help IPET Task 10 to characterize how mortality might have been different if there had been no failure of the hurricane protection system
- The scenario 2 results will help IPET Task 10 to characterize the residual mortality risks associated with the protection system as it exists in June 2006

Fatality Potential Model Results (Example only)



Literature Review of Katrina Health & Safety Impacts

- Purpose is to describe
  - full range of specific exposures for people in New Orleans,
  - the physical & mental health effects that have already been documented, and
  - other health effects that can be expected in the near or longer term based on empirical studies of past disasters
- Draft report to be completed by May 12, 2004